

National Security Education Center

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Information Science and Technology Seminar Speaker Series



Megan Hagenauer

University of Michigan

Dead men do tell tales: Using transcriptomics to decipher the mysteries of the post-mortem human brain

Wednesday, June 21, 2017

2:00pm - 3:00pm

TA-3, Bldg. 1690, Room 102 (CNLS Conference Room)

Abstract: Human brain banks provide us with a unique opportunity to learn more about the origins of neurological and psychiatric diseases. Within this precious tissue, the DNA and mRNA remain largely intact, allowing researchers to peek into the code underlying the construction and function of neural circuits. However, deciphering high-dimensional data of this variety is complex, and the streamlined analysis pipelines already in existence were typically developed using data from freshly-collected tissue in controlled animal experiments. In contrast, data from human post-mortem brains is essentially naturalistic, derived from individuals who have lived a full life of varied experiences, and overlaid with the dramatic functional changes that accompany the process of dying and partial tissue decomposition. In this talk, I will generally address the question of "What can we learn about the life of someone from their dead brain?"

Biography: Megan Hagenauer is a Research Investigator at the Molecular Behavioral Neuroscience Institute at the University of Michigan and one of the primary neuroinformaticians working with transcriptomic data in the Pritzker Neuropsychiatric Disorders Research Consortium. Her education includes a B.A. in Neuroscience from Grinnell College (2003), and M.S. (2006) and Ph.D. (2010) in Neuroscience from the University of Michigan, as well as five years of post-doctoral training in Bioinformatics. Her current research interests focus on improving the interpretation of brain transcriptomic data, with a particular interest in human post-mortem data and the etiology of mood disorder. Recent projects include estimating the balance of cell types in brain tissue using matrix deconvolution, identifying molecular signatures in emotional brain regions associated with anxiety and mania using meta-analysis, and extracting a "molecular timestamp" revealing the time of death from human post-mortem brains using clock gene expression.

For more information contact the technical host Curt Canada, 505-665-7453, cvc@lanl.gov.

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